RAPID MIXER GRANULATOR

# Rapid Mixer Granulator (RMG) by Fabon Pharmatech Pvt. Ltd.

## Company Overview

- **Fabon Pharmatech Pvt. Ltd.**, established in 1998 and based in Nashik, Maharashtra, specializes in manufacturing a broad range of **pharmaceutical, chemical, and food**

**processing equipment**, including Rapid Mixer Granulators (RMGs)

- Their RMG equipment is built in-house, adhering to **GMP standards**, designed for **hygienic use**, **durability**, and **ease of cleaning**.

- Located conveniently in Nashik (Ambad-Gavalana Road), they offer **localized support**, **customization**, and **after-sales services** for Maharashtra-based clients.

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## Features & Specifications (Generic to Fabon's RMG)

Based on the general industry-standard RMG specs and what's offered by Fabon, the equipment likely includes:

- **Construction Materials**:
    - SS 316L for product-contact surfaces
    - SS 304 for non-contact parts
    - Available in mirror or matte finishes for improved hygiene.
- **Capacity Range**:
    - Typical batch sizes from ~10 L to possibly 1200 L, depending on model—suitable from R&D labs to full-scale production .
- **Mixing & Granulation Mechanics**:
    - Impeller speeds: ~50–300 RPM (adjustable via VFD)
    - Chopper speeds: ~1000–3000 RPM
    - Counter-rotating impeller-chopper system for uniform granulation.
- **Control & Automation Options**:
    - Manual and/or automated PLC-based systems
    - Optional load cells, temperature/humidity sensors for process precision

    - Optional equipment such as jacketed bowls, CIP systems, explosion-proof design.

- **Discharge Mechanism**:
    - Pneumatic or gravity-aided discharge for efficient granule collection
    - Option to integrate inline wet milling for direct downstream processing.
- **Safety & Cleaning**:
    - Interlocked safety doors and emergency stop features
    - Clean-In-Place (CIP) options to minimize downtime and contamination risk.

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## Uses in Industry

- **Pharmaceutical Manufacturing**:
    - Wet granulation for tablets and capsules
    - Improves **granule uniformity**, **flowability**, and **compressibility**
    - Enhances overall **production quality and consistency**.
- **Food Processing**:
    - Ideal for blending and granulating **food powders**, cereals, instant beverages, proteins, and seasonings
    - Enhances texture, dissolvability, and consistency of final products.

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## Fabon's Distinct Advantages

1. **End-to-End Manufacturing**: Fabon handles design, fabrication, and customization entirely in-house, offering agile solutions tailored to client-specific need.
2. **High-Quality & Compliance**:

- Equipment is GMP-compliant and built from stainless steel for hygiene and durability
- Backed by rigorous quality checks and a warranty (typically 5–7 years.

3. **Local Support**:
    - Based in Nashik, offering faster logistics and support within Maharashtra
    - Offers installation, maintenance, and spare parts services.
4. **Export-Ready**:
    - Capable of serving both domestic and international markets with GMP-compliant machinery.

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# Summary Table

| Category | Details |
|---|---|
| **Manufacturer** | Fabon Pharmatech Pvt. Ltd., Nashik (since 1998) |
| **Material** | SS 316L contact parts, SS 304 non-contact parts |
| **Capacity** | ~10 L to 1200 L (approx.), batch sizes ~30–70% of capacity |
| **Mechanics** | VFD-controlled impeller and chopper; speeds 50–300 / 1000–3000 RPM |
| **Control** | Manual and optional PLC systems; sensors, load cell, CIP options |
| **Discharge** | Pneumatic or gravity-assisted; optional inline wet mill |
| **Applications** | Pharma (tablets/capsules), food powders, cereals, instant drinks |
| **Advantages** | GMP-compliant, hygiene-focused design, local support, custom solutions |

# Rapid Mixer Granulator (RMG) – FAQ

## 1. What is a Rapid Mixer Granulator (RMG)?

A Rapid Mixer Granulator is a high-shear granulation machine used in the pharmaceutical, chemical, and food industries for converting powders into uniform granules, primarily for tablet and capsule production.

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## 2. What is the working principle of RMG?

The RMG works on the principle of **agitation and shear mixing**:

- **Impeller** mixes dry powder and distributes binder solution.
- **Chopper** breaks down lumps and ensures uniform granule size.
- This high-shear mixing results in fast and consistent wet granulation.

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## 3. What are the main parts of RMG?

- Mixing Bowl (SS316L contact parts)
- Impeller (for blending)
- Chopper (for breaking lumps)
- Lid with charging port
- Binder solution inlet / spray nozzle (optional)
- Discharge valve (pneumatic/manual)
- Control system (Manual / PLC-HMI)

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## 4. What are the applications of RMG?

- **Pharmaceutical**: Granules for tablets & capsules
- **Food**: Instant drink powders, protein blends, seasonings

- **Chemicals**: Detergent powders, agrochemicals, catalysts

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## 5. What are the advantages of using RMG?

- Rapid and efficient mixing (batch cycle: 6–15 minutes)
- Uniform granules with good flow properties
- Compact design, GMP-compliant
- Easy cleaning (WIP/CIP options)
- Scalable – available from R&D to production sizes

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## 6. What capacities are available in RMG?

- Typically ranges from **10 liters (lab scale)** to **1200 liters (production scale)**.
- Effective working capacity: ~30–70% of the bowl volume.

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## 7. What materials are used in RMG construction?

- **Product contact parts**: SS316/316L
- **Non-contact parts**: SS304
- Finish: Inside mirror polished, outside matte or mirror as required

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## 8. What types of control systems are available?

- **Basic model**: Push button panel

- **Advanced**: PLC + HMI with recipe management, batch recording, alarms, and interlocks
- Optional: VFD for impeller & chopper speed variation

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## 9. How is cleaning done in RMG?

- Manual cleaning with detachable parts
- **Wash-in-place (WIP)** or **Clean-in-place (CIP)** systems available for higher hygiene and reduced downtime

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## 10. What is the typical granulation time in RMG?

- Usually **6–12 minutes per batch**, depending on material type, binder, and batch size.

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## 11. How is discharge done in RMG?

- **Pneumatic discharge valve** (standard in most models)
- Granules can be directly transferred to a Fluid Bed Dryer (FBD) or wet mill

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## 12. What safety features are provided in RMG?

- Lid interlock system (machine won't start if lid is open)
- Emergency stop switch
- Overload protection for motors
- Flameproof (FLP) models available for solvent-based granulation

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## 13. What are the differences between RMG and other mixers (e.g., planetary mixer)?

- **RMG**: High shear, fast process, ideal for wet granulation
- **Planetary Mixer**: Low shear, slow mixing, better for viscous masses, ointments, creams

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## 14. Can RMG be customized?

Yes, manufacturers (like **Fabon Pharmatech Pvt. Ltd.**) offer customization such as:

- FLP execution
- Inline wet milling
- Jacketed bowl for temperature control
- Vacuum-rated models
- Load cell integration

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## 15. What industries use RMG the most?

- **Pharmaceutical** (tablets/capsules)
- **Nutraceuticals** (protein powders, supplements)
- **Food processing**
- **Agrochemicals & Detergents**

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